

II. REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

In paragraph 5 of the Office action, the Examiner has rejected claims 8-15 under 35 U.S.C. § 112, second paragraph, as indefinite. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner argues that these claims are indefinite because they allegedly fail to recite an active process step, and that "including" is not sufficiently active, citing MPEP 2173.05(q). The portion of the MPEP cited by the Examiner provides absolutely no support for the proposition advanced by the Examiner. The portion of the MPEP cited merely cautions that claims phrased in terms of "use of" or "utilizing" may be indefinite. Applicants have not used such phraseology in their claims.

Moreover, the claims are unambiguous and clearly statutory. The claims are drawn to a method for enhancing a property of a material by including a particular substance or substances in that material. The putting of that substance in the material is certainly an active step in the process of enhancing the property. Moreover, one of skill in the art would readily be able to determine whether or not a process for increasing refractoriness of an inorganic fiber fell within the scope of the claims by merely determining whether the substances recited in the claims were included in the manner recited in the claims. *See In re Miller*, 169 USPQ 597 (CCPA 1971).

The Examiner also indicates that the claims are indefinite because it is unclear whether they require  $P_2O_5$  and/or  $B_2O_3$ . Applicants submit that the claims are completely clear and definite, and that there is no ambiguity between claim 8 and claims 10 and 12 when the claims are read in light of the specification. *See In re*

*Johnson*, 194 USPQ 187 (CCPA 1977). The specification, in particular at Table II, makes clear that the refractoriness of fibers can be increased by including formers for  $P_2O_5$ ,  $B_2O_3$ , or both, provided that the compositional limitations recited in claim 8 are maintained. Thus, it is possible for a fiber to contain no  $P_2O_5$  and fall within the scope of the claims, provided that it contains the appropriate amount of  $B_2O_3$ .

Similarly, it is possible for a fiber to contain no  $B_2O_3$  and fall within the scope of the claims, provided it contains the appropriate amount of  $P_2O_5$ . A worker of skill in this art, reading the claims in light of the specification, would understand this, and would be readily able to determine whether a particular method falls within the scope of the claims.

Applicants respectfully submit that the claims are clear and definite, and the Examiner's rejection should be withdrawn.

### III. REJECTIONS UNDER 35 U.S.C. § 102

#### A. Jensen et al.

In paragraph 8 of the Office action, the Examiner has rejected claims 8-15 as anticipated by Jensen et al. (U.S. Patent Nos. 5,691,255; 5,614,449; WO 95/29135). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Jensen et al. patents and publications are directed to producing soluble vitreous fibers having phosphate and borate, and that have good melt processing properties. There is no teaching or suggestion of either the relationships between the amounts of these components recited in the claims, or of the effect that the

components have on increasing refractoriness. To the contrary, Jensen et al. is primarily concerned with non-refractory uses of the vitreous fiber (horticultural growing media, sound and heat insulation, filler, etc.). Accordingly, there is no teaching of a method for increasing refractoriness by adding either of these compounds, and therefore no anticipation.

Moreover, the Examples cited by the Examiner further show that Jensen et al. were not in possession of the recited invention. For instance, Examples 1 and 4 include amounts of  $B_2O_3$  that are outside the range recited in claim 8. In Jensen et al. Example 1B, the amount of MgO is greater than 10 wt%, but the expression in (1)(a) of claim 8 equals  $-2.4$ , and is not  $> -2.4$  as recited in claim 8. Example 3 contains MgO in an amount less than 10 wt%, but expression (1)(b) in claim 8 calculates to  $-6.2$ , which is not greater than  $-2.4$ . Similarly, for Example 3A, this expression calculates to  $-5.1$ . Clearly, Jensen et al. did not recognize, either explicitly or implicitly, the need to include  $P_2O_5$  or  $B_2O_3$  formers in the recited amounts in order to increase the refractoriness of their fibers.

B. Thelohan et al.

In paragraph 9 of the Office action, the Examiner has rejected claims 8, 9, 13, and 14 as anticipated by Thelohan et al. (U.S. Patent Nos. RE 35,557 and 5,250,488). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

As with Jensen et al., Thelohan et al. is not concerned with increasing the refractoriness of the fibers disclosed therein. At column 5, Thelohan et al. disclose

that the fibers made by their invention are useful in forming geometrically shaped panels or tubular products for duct insulation, or mats sewn over cardboard or metal grills, netting, etc. There is no suggestion that the fibers are used in refractories, and therefore no suggestion of a method for increasing the refractoriness of these fibers and no recognition of the particular relationship of composition to enhancing this property. Accordingly, there can be no anticipation of the claimed methods, and the Examiner's rejection should be withdrawn.

C. Karppinen et al.

In paragraph 10 of the Office action, the Examiner has rejected claims 8-15 as anticipated by Karppinen et al. (U.S. Patent No. 5,843,854 and WO 92/09536). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

As with Jensen et al. and Thelohan et al., Karppinen et al. does not teach or suggest that the presence of phosphate, or borate, or both, increases the refractoriness of fibers made therefrom. Accordingly, there is no teaching of a method for increasing the refractoriness of inorganic fibers, and consequently no anticipation of the claimed invention. Karppinen et al. disclose only use as heat and sound insulation, e.g., in the construction industry. Karppinen et al. is concerned with increasing saline solubility by maintaining the weight ratio of phosphorus to aluminum and iron in a narrow range. See column 1, lines 10-21 and lines 36-42. Accordingly, the Examiner's rejection should be withdrawn.

D. Olds et al.

In paragraph 11 of the Office action, the Examiner has rejected claims 8-15 as anticipated by Olds et al. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner alleges that composition 172 of Olds et al. falls within the scope of the composition of the claims. However, evaluating the left side of expression (1)(a) of claim 8 for this composition yields  $-2.925$ , which is not greater than  $-2.4$ . The Examiner also alleges that compositions in Table 4 of Olds et al. fall within the scope of the claims, which do not require  $P_2O_5$ . As explained above, the claimed invention relates to the inclusion of  $P_2O_5$  or  $B_2O_3$ , or both, to increase the refractoriness of inorganic fibers. The compositions of Table 4 of Olds contain neither  $P_2O_5$  nor  $B_2O_3$ , and so cannot, therefore, suggest a method of increasing refractoriness of fibers by including formers for these materials. Accordingly, the Examiner's rejection should be withdrawn.

E. Holstein et al.

In paragraph 12 of the Office action, the Examiner has rejected claims 8-15 as anticipated by Holstein et al. (U.S. Patent Nos. 6,060,414; 6,037,284; and WO 93/22251). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

Holstein et al. is similar to Thelohan et al. in that neither discloses methods for increasing refractoriness of inorganic fibers by adding phosphate and/or borate formers to the glass composition. As with Thelohan et al., Holstein et al. is concerned instead with compositions for use as thermal and acoustic insulation in buildings, not

with use of fibers as refractories. As with Thelohan et al., Holstein et al. does not recognize or suggest that inclusion of phosphate and/or borate in the fiber composition in amounts as recited in the claims can increase the refractoriness of the fibers. Accordingly, Holstein et al. cannot anticipate the claimed method for doing this, and the Examiner's rejection should be withdrawn.

F. Jubb et al.

In paragraph 13 of the Office action, the Examiner has rejected claims 8-10, 12, and 14 as anticipated by Jubb et al. (WO 93/15028). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Examiner alleges that the compositions of Table 10 fall within the scope of the claims that do not require the presence of phosphorus. As described above, the invention relates to the introduction of phosphate or borate formers to increase refractoriness in inorganic fibers. The compositions of Table 10 of Jubb et al. contain neither phosphate nor borate. Accordingly, Jubb et al. cannot teach or suggest methods for increasing refractoriness by including phosphate or borate formers in the glass composition. As a result, Jubb et al. does not anticipate the claims, and the Examiner's rejection should be withdrawn.

Applicants submit that the present claims are in condition for immediate allowance, and an early notification to that effect is earnestly solicited. If the Examiner has any questions or if any issues remain to be resolved, the Examiner is respectfully requested to contact the undersigned at 404.815.6218 to discuss said issues.

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PRELIMINARY RESPONSE

The Commissioner is authorized to charge any additional fees that may be due or credit any overpayment in connection with this filing to Deposit Account No. 11-0855.

Respectfully submitted,



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